Claims

1. An internal combustion engine (10), in particular with fuel direct injection, having an exhaust treatment system (38) for reducing pollutants in the exhaust, which includes: a reservoir (44) containing an active ingredient (43), a delivery device (49) for delivering the active ingredient (43), and an injection device (42) for injecting the active ingredient (43) into the exhaust, characterized in that the exhaust treatment system (38) includes a pressure reservoir (50) that is fed by the delivery device (49); this pressure reservoir (50) is able to store the active ingredient (43) under pressure and is directly connected to the injection device (42).

2. The internal combustion engine (10) according to claim 1, characterized in that the delivery device includes a presupply pump (46) and a high pressure pump (48).

3. The internal combustion engine (10) according to claim 1 or 2, characterized in that the pressure reservoir (50) is connected to a pressure regulating device (54).

4. The internal combustion engine (10) according to one of the preceding claims, characterized in that it includes a control and/or regulating device (60), which controls and/or regulates the delivery capacity (M_UPR) of the delivery device (49), the pressure (PR_UPR) in the pressure reservoir (50), the time at which the injection of the active ingredient occurs, and/or the duration (TI_UPR) of an injection of the active ingredient as a function of the operating state (N, RA, RF, TMOT, LAMBDA) of the internal combustion engine (10).

5. The internal combustion engine (10) according to one of the preceding claims, characterized in that the delivery device (49), the pressure reservoir (50), and/or the injection device (42) are of the type used in direct-injecting fuel systems (37).

6. The internal combustion engine (10) according to one of the preceding claims, characterized in that the active ingredient is urea.

7. The internal combustion engine (10) according to claim 6, characterized in that it is possible to heat the pressure reservoir (50).

8. A method for operating an internal combustion engine (10) according to one of claims 1 through 7, characterized in that the delivery capacity (M_UPR) of the delivery device (49), the pressure (PR_UPR) in the pressure reservoir (50), the time at which the injection of the active ingredient occurs, and/or the duration (TI_UPR) of the injection of the active ingredient depend on the current operating parameters (N, RA, RF, TMOT, TASP, HASP, TSCR, NOX, LAMDA) of the internal combustion engine (10).

9. The method according to claim 8, characterized in that the operating parameters include a speed (N) of a crankshaft (21), a torque of the engine (10), a fuel mass (RF) injected into a combustion chamber (12), a temperature (TMOT) of the engine (10), a temperature (TASP) of the ambient air, a humidity (HASP) of the ambient air, a temperature (TSCR) before and/or after a catalytic converter (40), an NO_x and/or NH_3 content (NOX) in the exhaust, and/or a fuel/air ratio (LAMBDA) in the combustion chamber (12) or an equivalent value (RA).

10. A computer program, characterized in that it is programmed to be used in a method according to claim 8 or 9.

11. An electric storage medium for a control and/or regulating unit (60) of an internal combustion engine (10), characterized in that it stores a computer program to be used in a method according to claim 8 or 9.

12. A control and/or regulating unit (60) for an internal combustion engine (10), characterized in that it is programmed to be used in a method according to one of claims 8 or 9.